

REMARKS

STATUS OF THE CLAIMS:

Claims 1-28 are pending.

Claims 1-28 are rejected

Claims 1-2, 9-11, 18-20 and 27-28 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Applicants Admitted Prior Art, hereinafter referred to as "AAPA," in view of Coates et al., U.S. Patent No. 6,694,389, hereinafter referred to as "Coates."

Claims 3-8, 12-17 and 21-26 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over AAPA, in view of Coates, in further view of Mizuno, U.S. Patent No. 6,922,743, hereinafter referred to as "Mizuno."

In accordance with the foregoing, the claims are amended, and, thus, the pending claims remain for reconsideration, which is respectfully requested.

No new matter had been added.

The Examiner's rejections are respectfully traversed.

CLAIM REJECTIONS:

Independent claims 1, 10, 19 and 28 are allegedly rejected over AAPA in view of Coates.

The Office Action, at page 6, lines 12-15, asserts that the Specification, page 3, lines 12-20, page 4, lines 2-8, page 4, line 25 to page 5, line 6 and page 9, lines 7-16, discusses "a buffer for enqueueing information on one or more input/output requests." The Specification, in the Background of the Invention, at page 3, lines 13-17 recites:

... **the data to be written** is transferred from the host 4 to the host interface module 20 through the fiber channel interface bus 50, and **temporarily stored in the cache memory** ...

Accordingly, the Examiner appears to assert that the "cache memory" discloses the claimed "reconnection queue." In accordance with the foregoing, the claims are amended for clarity, using claim 1 as an example, to provide "a reconnection queue for enqueueing control blocks storing reconnection information on one or more input/output requests ~~to be reconnected among~~ input/output requests from said channels of said host ~~as control blocks~~, and managing said enqueued control blocks." Support for the claim amendments can be found, for example, on page 26, lines 6-9 of the Specification. Applicants respectfully submit that the claimed "reconnection queue for enqueueing control blocks storing reconnection information on

one or more input/output requests" clearly differs from the cache which merely temporarily stores the data to be written.

Furthermore, the Specification, in the Background of the Invention, at page 9, lines 5-18 merely recites:

In the first system in which the reconnection request is issued one by one, the I/O processing time is prolonged when a number of I/O requests waiting for reconnection are present in the storage controlling apparatus 3. When the start of the I/O process and the reconnection request occur at the same time in such situation, the I/O processing time is largely prolonged (occurrence of subduction phenomenon).

When a number of I/O requests waiting for reconnection are present in the storage controlling apparatus 3, the second system (scattering mode) is very effective because the reconnection request can be efficiently issued.

In other words, the Specification at page 9, lines 5-18 as the alleged AAPA merely discusses "a number of I/O requests waiting for reconnection," however, the Specification at page 9, lines 5-18 fails to disclose or suggest the claimed "reconnection queue for enqueueing control blocks storing reconnection information on one or more input/output requests," because the Specification at page 9, lines 5-18 only discusses that there can be a number of I/O requests waiting for reconnection. Support for the claim amendment can be found, for example, in the application Specification at page 26, lines 3-16. Accordingly, Applicants respectfully submit that the alleged AAPA fails to disclose or suggest "a buffer for enqueueing information on one or more input/output requests" as asserted by the Examiner. Furthermore, Applicants respectfully submit that the alleged AAPA fails to disclose or suggest the claimed "control blocks storing reconnection information" nor the claimed "reconnection queue" for enqueueing the same.

The Office Action, at page 8 lines 11-12, asserts that Coats teaches "determining the occupancy of a buffer by counting the number of sub-buffers in a steady state of starvation and congestion (col. 11, ll. 21-32)." The Office Action, at page 9, lines 5-9, further asserts "it would have been obvious to one skilled in this art, at the time the invention was made to include Coates's buffer control [and] implementing the buffer as the reconnection queue." Applicants respectfully disagree with the Examiner's assertion, because Coates at column 1, lines 12-19, discusses:

In electronic systems, data items are transmitted between data producers and data receivers. A first-in-first-out (FIFO) buffer is commonly used between such producers and receivers. It is desirable to ensure that the FIFO buffer does not become full (congested) or empty (starved) during the transmission. Thus, the

state of the FIFO is monitored, which enables the data producer and data receiver to modify their transfer rates to avoid filling or emptying the queue.

In other words, Coates discusses a buffer for temporarily storing data to be transferred between a data producer and a data receiver and the state of the buffer is monitored. In contrast, the claimed embodiment provides “a reconnection queue for enqueueing control blocks storing reconnection information on one or more input/output requests.” Applicants respectfully submit that Coates fails to disclose or suggest the claimed “reconnection queue for enqueueing control blocks storing reconnection information on one or more input/output requests,” because Coates merely discusses a buffer for storing information to be transferred between a data producer and a data receiver.

The Office Action relies upon Coates at Figure 5 and column 3, lines 36-50 for allegedly disclosing the claimed “switching means for dynamically switching the system to be executed by said controlling means to either said first system or said second system according to the number of the enqueued control blocks monitored by said monitoring means.” Applicants respectfully disagree with the Examiner’s assertion, because Coates, at column 3, lines 36-50 discusses:

FIG. 5 illustrates the operation of one embodiment of a flow controller. At step 500, **it is determined whether the fullness of the buffer is above an upper threshold**. If the fullness is not above an upper threshold, the process moves to step 530. If the fullness is above an upper threshold, at step 510, the buffer signals the data producer to decrease its transfer rate. At step 520, the buffer signals the data receiver to increase its transfer rate and the process moves to step 530. At step 530, **it is determined whether the fullness of the buffer is below a lower threshold**. If the fullness is not below a lower threshold, the process moves to step 500. If the fullness is below a lower threshold, at step 540, the buffer signals the data receiver to decrease its transfer rate. At step 550, the buffer signals the data producer to increase its transfer rate and the process moves to step 500.

In other words, Coates discusses monitoring whether the fullness of a buffer is above or below a certain threshold and controlling the transfer rate. In contrast, the claimed embodiment provides “**dynamically switching** the system to be executed by said controlling means to either said first system or said second system **according to the number of the enqueued control blocks** monitored by said monitoring means.” Applicants respectfully submit that Coates fails to disclose or suggest “**dynamically switching** the system ... **according to the number of the enqueued control blocks**,” because, as discussed above, Coates fails to disclose or suggest the claimed “enqueueing control blocks storing reconnection information on one or more

input/output requests," and switching between two different I/O processing systems based upon the queued reconnection information.

Applicants respectfully submit that a prima facie case of obviousness cannot be based upon the AAPA in view of Coates, because a person of ordinary skill in the art, possessed with understandings and knowledge reflected in the prior art, and motivated by the general problem, facing the inventor, would not have been led to make the combination recited in the claims, because neither the AAPA, Coates, or any combination thereof discloses or suggest the claimed "reconnection queue for enqueueing **control blocks storing reconnection information on one or more input/output requests** ~~to be reconnected among~~ input/output requests from said channels of said host as control blocks, and managing said enqueued control blocks ... and ... **dynamically switching** the system to be executed by said controlling means to either said first system or said second system **according to the number of the enqueued control blocks** monitored by said monitoring means," as recited, for example, in claim 1.

Dependent claims recite patentably distinguishing features of their own or are at least patentably distinguishing due to their dependence from the independent claims. Withdrawal of the rejection of pending claims, and allowance of pending claims is respectfully requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

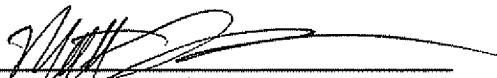
If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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